



Perspective of a Smoke-free Home among Second-hand Smokers during Pregnancy: A Qualitative Study

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ABSTRACT

Tobacco use is one of the largest causes of preventable diseases across the world. It is interesting to note that second-hand smoke exposure is a major public health problem in Malaysia. The objectives of this study are first, to explore the perspectives of pregnant mothers whose partners are smokers, and second, to explore barriers and facilitators to creating a smoke-free environment in their home. This study uses a qualitative method in analysing the experiences of 15 pregnant mothers taken from a specialist healthcare centre in Sungai Buloh, Malaysia. It discusses the perspectives of these pregnant mothers towards their partners' smoking habits, as well as the barriers and facilitators in creating a smoke-free home. From the interviews, it became apparent that pregnant mothers despised their partners' smoking habits due to smoke odour, lack of money, and poor health. The barriers in creating a smoke-free home include the attitude of the smoking spouse, difficulty in weaning off the habit, excessive encouragement by a spouse, difficulty in advising a smoking spouse, influences from friends, and wrong perceptions. Meanwhile, the facilitators towards creating a smoke-free home are illnesses developed through smoking, multiple reminders from family members, and nicotine replacement therapy (NRT) were perceived to work on certain smokers and habitual cues in quitting smoking. The transition process towards making homes smoke-free is complex and individualistic; healthcare professionals may need to tailor strategies

to take into account the specific contexts of each individual. More education programmes on the impacts of smoking and second-hand smoke exposures to family members and smoking cessation are needed for both pregnant mothers and their smoking partners.

ARTICLE INFO

Article history:

Received: 25 October 2016

Accepted: 17 March 2017

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Keywords: Pregnancy, qualitative, second-hand smoke

INTRODUCTION

Tobacco use is one of the largest causes of preventable diseases across the world including in Malaysia. According to the World Health Organisation (WHO), about 6 million people die each year due to tobacco; more than 5 million of the deaths are the results of direct tobacco use, while more than 600,000 are the results of non-smokers being exposed to second-hand smoke (Bilano et al., 2015). Second-hand smoke is also called environmental tobacco smoke, where people inhale the smoke exhaled by smokers.

Second-hand smoke (SHS) exposure is a major public health problem. In a retrospective study across 192 countries, about 40% of children, 35% of female non-smokers and 33% of male non-smokers were exposed to SHS in 2004 (Öberg et al., 2011). However, established public health policies have been effective in reducing exposure to SHS, the initiation of tobacco use among young people, tobacco use prevalence, tobacco related morbidity and mortality, and healthcare costs (Pierce, White, & Emery, 2012).

In addition to smoke-free policies in public spaces, these policies should also be implemented in our homes as smoke is a significant source of SHS exposure (Health & Services, 2006). Smoke-free policies in personal spaces such as in homes and cars are able to reduce the amount of people who smoke, and reduce the risks of SHS among children and non-smoking adults sharing those personal spaces with the smokers (Cartmell et al., 2011).

A report by the Institute of Medicine found that second-hand smoke can cause heart attacks. This is because tobacco contains toxic chemicals including formaldehyde, benzene, vinyl chloride and hydrogen cyanide (Pope III et al., 2011). These chemicals when inhaled by pregnant mothers will be passed to their foetus through the placenta. The chemicals passed to the foetuses can be harmful to them. For example, nicotine decreases the blood flow to a foetus while carbon monoxide will affect the baby's growth and development (Wickstrom, 2007).

In addition to this, exposure to second-hand smoke can lead to cardiovascular and respiratory diseases in adults, while it can cause sudden death in infants (Leonardi-Bee, Britton, & Venn, 2011). Reduced birth weight, risk of preterm birth, and newborn neurobehavioral deficits are the unfavourable effects of prenatal SHS exposure (Law et al., 2003). Earlier research found that the early childhood overweight mass index increases along with foetal SHS situations (Braun et al., 2010). Moreover, the effects of SHS are more prevalent among low income pregnant women. This shows how important it is for pregnant mothers to avoid SHS exposure. Sadly, most times no action is taken to prevent the exposure, such as banning smoking in cars or at home to protect the foetus and other children. There are several ways to avoid inhaling second-hand smoke; these include creating a smoke-free home and car and also avoiding places that are not smoke-free. In Malaysia, however, majority of pregnant women are exposed to tobacco smoke from their own family members, especially their husband.

There are a number of qualitative studies which have shown that some residents successfully create smoke-free homes (SFH) whereas others deal with this barrier; this indicates that a significant change in behaviour is needed (Jones et al., 2011). The main facilitator for change comprises of protecting the health of others, particularly children, while the barrier comprises of the lack of knowledge about the dangers of SHS and consequences of smoking at home (Jones et al., 2011). These prior studies focused on the smoker, whereas this research emphasised on the perspectives of non-smokers, and more specifically, the pregnant wives

of smokers. Pregnancy is the key factor that acts as a trigger for these households to create SFH as they fret about the health of their offspring. Also, the observable effects of SHS on the existing children will enhance the need for behavioural change in couples. The aims of this study are to explore the perspectives of non-smoker pregnant mothers in relation to their smoker husbands, as well as the barriers and facilitators in creating a smoke-free home. Pregnant mothers who are currently smoking were excluded from the population for this study. The study design draws from qualitative studies, in which it is more favourable than a quantitative study because it can develop hypotheses for further testing and help to understand the feelings, values and perceptions underlining and influencing the participants' behaviours. Besides this, a qualitative study may also help in generating ideas to improve the current policies in place and reduce the number of smokers.

METHOD

This qualitative study design was conducted between July 11th and August 5th, 2016, at the Gynaecology Clinic of a public teaching hospital in Malaysia. In-depth interviews were conducted among Malay-speaking pregnant women who fulfilled the inclusion and exclusion criteria. The inclusion criteria included women attending the recruitment drive, who had been exposed to cigarette smoke from their spouses at home. We excluded the women who were currently smoking.

Data Collection

The interviews were conducted during the patients' waiting times at the Gynaecology clinic over a period of two weeks in July 2016. Each participant was given an information sheet explaining the objectives of the study and their rights as the participants, and required to give their consent prior to the interviews. The participants' particulars were erased once the recordings had been transcribed and checked to assure confidentiality. This study was approved by UiTM Research Ethics Committee.

All the respondents were briefed on the purpose of this study before they were asked several questions based on three standardised open-ended questions. The first set covered the feelings of pregnant women towards their partner's smoking habits. The second set featured seriously unwell babies and stressed the risks vulnerable children faced from those who exposed them to smoke. The final questions explored the experience and barriers of a smoke-free environment.

1. *What do you think of your partner's smoking habit?*
2. *What are the facilitators in creating a smoke-free home?*
3. *What are your experience and the barriers in creating a smoke-free home?*

All the interviews lasted around 20 minutes and were audio-taped. The interviews were conducted by four researchers who were similarly trained in conducting qualitative interviews. As a token of appreciation for their time, the respondents were given refreshments costing around RM20 (5 USD) after the interviews. Recordings were reviewed following each interview to assess whether new ideas or elements continued to emerge. We determined that data saturation had occurred when the transcriptions revealed no new themes.

Data Analysis

Each interview was transcribed verbatim. The transcriptions in Bahasa Malaysia were conducted by the interviewers themselves after each session. These were translated into English and reviewed by the researchers, and later checked by two independent lecturers who are fluent in both languages, both of whom are with Masters in Public Health and trained in qualitative analysis. Analysis of data consisted of a systematic thematic review of individual transcripts and notes. The research team identified primary (i.e., major topics) and secondary codes (i.e., based on recurrent themes from the major topics) of each transcript. Matrices were constructed to identify patterns and themes. The research team resolved any discrepancies through multiple discussions. The themes from the matrices and coding were identified and agreed by all the researchers. Data were stored as word documents and analysed manually by the researchers using highlighter pens, summaries and word tables. From the interview, three major themes were identified based on the objectives of the study: (a) the perspectives of mothers towards their smoker husband; and (b) the barriers and facilitators to creating a smoke-free home. As the three major themes and subthemes were identified, the focus was then placed on searching for coding from the interviews and to code them accordingly.

RESULTS

A total of 15 interviews were conducted at the Clinical Training Centre in Sungai Buloh and Selayang. Details of all the participants can be seen in Table 1. Majority of the respondents (n=13) are Malays and the rest are Indians. Demographic details of the respondents are described in Table 1 and details of the participants' characteristics in Table 2.

Table 1
Respondents' sociodemographic characteristics

Characteristics	N (%)	Characteristics	N (%)
Age		Number of Pregnancy	
20-25	1 (6.7)	1 st	10 (66.7)
26-30	10 (66.7)	2 nd	2 (13.3)
31-35	3 (20.0)	3 rd	0 (0.0)
36-40	1 (6.7)	4 th and above	3 (20.0)
Ethnicity		Employment Status	
Malay	13 (86.7)	Currently employed	4 (26.7)
Indian	2 (13.3)	Not employed/ housewives	11 (73.3)
Chinese	0 (0.0)	Monthly household salary	
Education level		<RM1000	3 (20.0)
Primary School	3 (20.0)	RM1000-RM2999	6 (40.0)
Secondary School	5 (33.3)	RM3000-RM4999	3 (20.0)
Diploma	2 (13.4)	>RM5000	3 (20.0)
Degree and above	5 (33.3)		

Table 2
Individual respondents' details

Participant	Age	Which part of the house did smoking take place in	Employment	Current pregnancy
1	30	Outside	Unemployed	1
2	33	Outside	Unemployed	4
3	27	Outside	Unemployed	2
4	20	Outside	Unemployed	1
5	30	Outside	Employed	2
6	28	Outside	Employed	1
7	30	Outside	Employed	1
8	28	Outside	Unemployed	1
9	29	Outside, Inside	Unemployed	4
10	28	Outside	Unemployed	1
11	33	Outside	Employed	4
12	28	Outside, Inside	Unemployed	1
13	33	Outside	Unemployed	1
14	39	Outside	Unemployed	1
15	26	Outside	Unemployed	1

Three major themes emerged from the interviews in understanding the perspectives of pregnant mothers towards their smoker husband and exploring the barriers and facilitators in creating a smoke-free home.

Perceptions of Pregnant Mothers towards their Smoker Husbands

In the first theme, through the interviews conducted, six distinct perceptions of pregnant mothers towards their smoker husband. These perceptions can be categorised as follows.

Worsen the mother's previous health condition. Pregnant mothers reported feeling worried that their partner's smoking habits would worsen their health conditions. This is in relation to their existing health conditions, thus making them uncomfortable in being exposed to cigarette smoke. This, in turn, is a reason for their disagreement with their partner's smoking habits, as demonstrated in the following excerpts:

"Right now is about my allergies. Allergies cannot smell cigarette smoke. It makes me throw out."

(Participant 1)

"I don't like it because of its odour. Then I have sort of like sinusitis, and it really makes me uncomfortable."

(Participant 13)

Worried of the effects to the surroundings and unborn babies. Pregnant mothers were well aware of the possible effects of cigarette smoke which are not limited to smokers but also to their surroundings. This inclination was due to natural pregnant maternal instincts of caring for their baby's health. No parents want their babies to be borne with a disability. This can in turn encourage couples to quit smoking for the sake of their babies.

"We also can get diseases for example mouth cancer and lung cancer which affects breathing. Pregnancy is also affected as it may lead to prematurity."

(Participant 10)

"Because it will affect the baby."

(Participant 5)

"First, our own health and then it will affect the baby's health."

(Participant 8)

Long-term effects on spouse. Cigarette smoking employs disastrous effects on the spouse who smokes in the long run. This particular habit carries a great price, not only mentally but also economically.

"Of course it is not okay. If he continues smoking he will get sick."

(Participant 2)

"I am worry about his health, not good for heart. Besides, he has asthma."

(Participant 15)

Smell of Cigarettes. One of the main problems that troubles pregnant mothers is the smell of cigarette smoke. Majority of the pregnant mothers cannot bear the smell of cigarette smoke. This is not particularly restricted to the period of pregnancy, but also during the time when they are not pregnant. The odour does not only present when a person smokes, but it remains in the area for some time. This creates an unhealthy environment that can affect other people as well.

"I don't like the odour and the smoke is unpleasant."

(Participant 15)

"Even if I am not pregnant I still don't like the smell of smoke."

(Participant 5)

Financial Problems. Financial problem is also one of the issues that emerged from the interviews. The participants felt that buying cigarettes was a waste of financial resources. Surprisingly, husbands were not embarrassed to ask for money from their wives to buy cigarettes

when they ran out of money at the end of the month. One participant revealed that her husband got emotionally aggressive if she failed to assist with his financial needs.

“It is definitely a huge waste of money”

(Participant 8)

“One more thing, he uses the money for cigarettes and alcoholic beverages. RM10 per day is not enough to accommodate his habit. He will get mad if I refused to increase the amount and called me stingy.”

(Participant 9)

Not affected at all. In the current situation, not all the participants agreed that their husband’s smoking habits are unhealthy. Based on the interviews, some seemed to believe that cigarette smoking is a normal trend.

“Because of my father also smoking, so I am okay with it (laugh). Maybe I used to it.”

(Participant 12)

Barriers for Creating a Smoke-Free Home

This theme focuses on the barriers for creating a smoke-free home and the study explored the six reasons that cause these barriers.

Attitude of the smoking spouse. The attitude of smokers is one of the barriers to creating a smoke-free home. Thus, even though the participants kept advising their spouses, it was difficult to get through to them as the desire to quit smoking must come from oneself. The husbands gave a lot of excuses when they were advised to quit smoking.

“I had advised him, but I am not sure if he took my words seriously”

(Participant 1)

“My husband is really stubborn, considering all my efforts to advise him. He told me he tried to stop, but it was not easy.”

(Participant 7)

“We are aware of the bad effects of cigarette smoking to secondary smoker. We have talked about this issue, but he came up with too many excuses.”

(Participant 3)

Difficult to wean off the habit. Smoking cigarettes in the long run will cause smokers to be psychologically dependent to it as it contains nicotine. From the interviews, it can be seen

that majority of the smokers started to smoke at a very young age. They have been exposed to nicotine for a very long time and find it difficult to live without it.

“But then when he have that habit, it’s hard to leave it behind. He started smoking when he was seventeen till present. He has been relying too much on smoking.”

(Participant 12)

Even worse, there are pregnant mothers who have given up advising their husbands to stop smoking.

“I have been asking him to quit (smoking) many times before, but nothing happened. Even my son had asked me to forget about it.”

(Participant 14)

Difficult to advice smoking guests. Another barrier emerged from the cultural aspect of receiving guests. Many participants felt that it was impolite to warn smokers against smoking in their homes. They felt that doing this was a sign of disrespect to their guests. This is similar to family gatherings that involve grandparents and close family members, especially those who are older.

“When we having guests coming, we said no smoking, but still there are still some of them who refused the rule, like when I host an open house. But then I didn’t say anything because they are guest. If they are my relatives, I will stop them.”

(Participant 2)

“When it come to the relatives it is okay but when it comes to relative who are older than me like my father, it is likely impossible to ask them to stop smoking. I was worried if it might hurt their feelings.”

(Participant 4)

“Are we supposed to say hey, do not smoke in my house to the guests? Am I right?”

(Participant 8)

Influence from friends. Peer pressure is one of the main factors that attracts a person to smoke cigarettes. Some respondents claimed that they chose to smoke to ensure that their friendship remained unaffected. This gives smokers a hard time in having to choose between quitting smoking and friends. In addition, the respondents revealed that working colleagues who were active smokers would also influence their decisions to stop smoking.

“When he hangs out with his friends, they will start smoking together.”

(Participant 2)

“He is a social smoker, it’s not like he smokes because he wants to smoke. Depending on the situation, if the guest is not smoking, then he knows that no one will join him smoking. So he will not smoke. If there is someone who smokes, he will join them.”

(Participant 3)

Perceived smoking can reduce stressors at work and in everyday life. Stress can be defined as an emotional pressure and each individual has different ways in coping with his or her stress. From the interviews, it can be noted that some of the spouses are struggling with stress at work.

“It’s all because of work, due to stress.”

(Participant 10)

“Because of work and stress, it has already becoming his habit to smoke at work with his colleagues.”

(Participant 9)

Facilitators to Creating a Smoke-Free Home

The last theme to consider as part of this study is the facilitators that can lead to creating a smoke-free home. Four facilitators were identified from the respondents’ interviews, as detailed in the following excerpts:

Smoking spouse suffers from illness. Based on one participant’s experience, her smoking husband was able to quit for a while when he got sick. This happened as he knew that cigarettes could worsen his condition. Sadly after recovering, he went back to his old habit. It seems like smokers will only stop smoking when they are admitted to hospital or diagnosed to have health conditions caused by smoking. There are also smokers who wanted to quit after witnessing their relatives suffering from health problems as the consequence of smoking.

“Last time he got sick and had an operation. He has not smoked for three months. But eventually, he smokes again when he recovers.”

(Participant 14)

Multiple reminders from family members. Having people to constantly remind smokers about the effects of smoking on their own health and others surrounding them helps them to stay in line. Not only does it show affection and love between family members, it also improves their health. The participants also mentioned that they had prepared a note for their guests to not smoke inside their house. The note serves as a warning to prevent them from smoking in the house.

“No, he does not smoke in front of our children. After meals he will smoke outside. When he is done, I will ask him to wash his hand, clean his mouth, and change his clothes if there is some smell on it.”

(Participant 3)

Sometimes, a reminder from a person who is very close to the smoker can work wonders. This can be seen from the interview, where reminders from a smoker's own mother helped him to reduce the bad habit. This shows his love for his mother and that he has tried not to hurt her feelings by obeying her order.

"His mother told him to reduce smoking and he obeys what his mother's said."

(Participant 15)

Habitual cues in quitting smoking. There was one participant who used a different approach in helping her spouse to stop smoking, i.e. by giving him a nutritious drink. She gave it to him without failing to mention that there is an improvement in his smoking habit, as the ingredients contained in the drink helps to detoxify the smoker's body.

"Usually I gave him some nutritious drinks. There is some improvement to his habit."

(Participant 15)

Some of the participants said that it is best to not put an ashtray in their homes. This small effort will force smokers to smoke outside the house. This practice is very good in creating a smoke-free home. It also sets a better example for the young ones in the family as they will not smoke in front of their children.

"So far, I did not provide ashtray. So guest will not smoke in my house."

(Participant 6)

DISCUSSION

Perceptions of the Pregnant Mothers

In regards to the perspectives of pregnant mothers with smoking partners, it was found that most of them have a persistent complaint towards the idea of smoking because of its impact on SHS. In Malaysia, a husband is still generally the main economic generator for a family, especially when the wife is not working. If the main generator is not functioning well due to health conditions that are caused by cigarette smoking, the whole family will be affected. Not only do they have to take care of a sick person in the family, they also have to look after the hospital bills as well. The current findings are consistent with a prior research that indicates the main concern about SHS is its health impact especially towards the surrounding and unborn babies (Leonardi-Bee, Britton, & Venn, 2011). Thus, the best way to prevent the consequences of SHS is by creating a smoke-free environment by educating the community on the impacts of smoking. The study differs from prior studies in that it shows that NRT can help in smoking cessation although it is not effective for all smokers (Bilano et al., 2015).

In addition, there are some who do not like their partner's smoking habits as it has an unpleasant odour. Most people have difficulty in adapting to their partner's smoking habits as they are not used to cigarette smoke and odour. Thus, they choose to stay away from their husbands whenever they smoke. Furthermore, lack of understanding on early life exposure towards cigarette smoking among spouses was another important factor that emerged. Therefore, it is very crucial to educate the society about the impacts of smoking in their life collectively.

Financial problems is also an emerging theme reported in the research. The price of cigarettes is quite expensive for a heavy smoker who may smoke 2 packs of cigarette a day. Therefore, it is very reasonable for the government to raise cigarette taxes so that smoking rates, especially among low income smokers, can be reduced. Raising the tax imposed on cigarettes is seen as a smart approach in controlling the demand for cigarettes in the current market.

In addition, preventing ashtrays from being put in the homes will reduce the spouse's tendency to smoke inside the house and their wife's exposure to SHS.

Barriers to creating a smoke-free home

A researcher in China stated that several smokers who had tried to quit smoking failed after an abstinence for a short period of time as their friends offered cigarettes to them, which caused them to smoke again (Berg, Zheng, & Kegler, 2015). The finding from this previous study correlates with the finding in our study, as 2 out of 15 respondents reported that even though they did not buy cigarettes in an attempt to quit smoking, their spouse's friends would sometimes offer them cigarettes. Moreover, it becomes a challenge not to refuse the invitation so as to maintain a good relationship with their friends.

Furthermore, smoking can become habitual, and it can be difficult for smokers to quit. Some of our respondents stated that their husband started smoking at an early age. There are many factors that can trigger someone to smoke from an early age. We postulated that one of them is because of the early exposure to smoke by their parents. Other factors can include being influenced by friends and the curiosity to try smoking. Family and peers can influence smoking patterns as their opinions and behaviours influence individual's core cultural values and norms (Nichter, 2003). Some of our respondents stated that they had given up advising their husband to quit smoking as it was difficult to do so.

The other barrier outlined in our study is the attitude and perception of smokers themselves. One of the attitudes is the perceived reduction of stress when smoking. This issue is often used as an excuse for smokers to not stop smoking. It is very worrying as the respondents will start to believe that smoking is the only way to help their spouses in coping with stress. Prior research revealed that pregnant mothers had problems in negotiating with their husbands in order to create a smoke-free home, as there were many excuses and complaints (Bottorff et al., 2006). Thus, intervention should suggest an action that the wife and family members could take in order to create a smoke-free home such as negotiation skills. In addition, even though smokers know the bad effects of cigarette smoking, they still fail to quit as the desire to quit smoking must come from within oneself.

Facilitators in Creating a Smoke-Free Home

With regards to our last theme, multiple reminders by family members act as a critical changing agent in creating a smoke-free home. The current study documented that close family members such as the smoker's mother and wife do play a role in influencing him. This finding correlates with a prior research in the United States on the interpersonal factors that facilitate in creating a smoke-free home (Kegler, Escoffery, Groff, Butler, & Foreman, 2007).

In addition, the spouses lack preventive awareness and choose to stop smoking only when their health conditions worsen. For instance, one of our respondents stated that her husband stopped smoking when he suffered from an illness and was hospitalised. This is because smoking is prohibited in hospitals to protect patients and staff from second-hand smoke exposure. Thus, smoking cessation counselling during hospitalisation by health care workers should be conducted in order to motivate patients to quit smoking. This finding is supported by a study that was published in 2012, which stated that high-intensity counselling of over 10 minutes per session and follow-up observations within at least a month for hospitalised patients were effective for successful smoking cessation, regardless of the patient's disease at admission (Rigotti, Munafo, & Stead, 2007).

About 8 participants in our study did not have a single idea on how to create a smoke-free home. Thus, educational outreach should play a role by focusing on strategies to create a smoke-free home. Moreover, efforts from community leaders, healthcare personnel, and support from the community are also needed in order to create smoke-free homes.

Implications of the Study

This study has important implications for current practice and future research. Research is needed to identify measures that may facilitate the adoption of smoke-free home policy. Moreover, strategies in the form of interventions targeting to promote the adoption of smoke-free homes and addressing its challenges should be of priority. The facilitators which include good communication between the spouses, good knowledge and perception among smoking husbands and excellent family support should be taken into account when drafting the policy. In particular, it may be beneficial to address the need to provide educational aid to pregnant women in terms of communication with their spouse on the implementation of smoke-free homes. They should also be trained on how to avoid SHS exposures in public places. In practice, clinicians should promote smoke-free homes in the clinical setting, particularly among pregnant women and in household with small children.

Strengths and Limitations

This study is subjected to some limitations. Firstly, this study is qualitative in nature and therefore cannot be generalised to other population groups. Although it does give some views on the issue undertaken in the study, a bigger sample size of qualitative study in the near future will give more benefits. Secondly, the sample size of this qualitative study is rather small, a bigger sample with multiple centres may be required as it may enrich the data. Lastly, the participants were heterogeneous, comprised of various backgrounds but lacked different ethnicities in Malaysia. Thus, some open-ended questions might be perceived differently by the respondents, and the participants might have responded to them differently.

The main strength of this study is that it is one of the first studies discussing on the pregnant mothers' views on exposures to second-hand smoke. This is a specific population-based study, in which their views are important for the development or enhancement of policies on smoke-free homes. Moreover, this study may also stimulate future research in this area, especially among other specific population groups.

CONCLUSION

The study documented the perspectives of pregnant mothers about their partners' smoking habits and the barriers and facilitators in creating smoke-free homes. The findings suggest that the health of the soon-to-be delivered baby is the most important reason for mothers to disagree with their husband's smoking habits. The results also showed that many households are having social and personal problems in creating smoke-free homes. The findings of this study can be used to aid in understanding the problem and facilitating future development in increasing the number of smoke-free homes.

ACKNOWLEDGEMENTS

This project was funded by the Fundamental Research Grant (FRGS/1/2015/SKK01/UITM/03/1). The authors would like to thank the participants for their support throughout this study.

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